

# SHRI POOJA CHALLAGULLA

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## EDUCATION

### University of Arizona

Expected Dec 2026

Bachelor of Science in Computer Science and Artificial Intelligence (Dual Major), Minor in Mathematics

**Future Academic Plan:** Incoming PhD Student in Computer Science (Machine Learning), University of Arizona

**Coursework:** Machine Learning, Cloud Computing, Data Structures & Algorithms, Software Engineering, Data Science, Artificial Intelligence

## TECHNICAL SKILLS

**AI / ML:** LLMs, RAG Pipelines, Agentic AI Workflows, Multi-Agent Systems, Prompt Engineering, NLP, TensorFlow, PyTorch, scikit-learn, LangChain, Vector Databases, Embeddings

**Backend / Cloud:** AWS (Lambda, S3, EC2), FastAPI, Flask, PostgreSQL, MySQL, REST APIs, Microservices, Git/GitHub

**Programming:** Python, SQL, Java, JavaScript, Shell Scripting, HTML, CSS

**Data & Analytics:** NumPy, Pandas, Matplotlib, Excel

**Software Engineering:** System Design, API Integration, Workflow Automation, Data Validation Pipelines, Logging & Monitoring

## PROFESSIONAL EXPERIENCE

### AI Systems Engineer Intern

Jan 2026 – Present

*McGraw Hill*

- Developing an industry-partnered AI proof-of-concept for agent-driven, course-aligned learning systems using LLM-based architectures.
- Designing orchestration workflows for intelligent tutoring and content retrieval using Retrieval-Augmented Generation (RAG) pipelines, integrating graph-based RAG approaches leveraging knowledge graphs and structured relationship mapping to improve contextual reasoning and retrieval accuracy.
- Implementing structured knowledge retrieval strategies to support explainability, multi-hop reasoning, and semantic linking across educational content.
- Collaborating with faculty, researchers, and industry stakeholders to define AI system requirements, evaluation metrics, and responsible AI deployment strategies.

### AI Solutions Developer

Aug 2025 – Dec 2025

*AWCIM Cancer Center*

- Built an AI-powered RAG chatbot using vector embeddings, pgVector, FastAPI, and AWS Lambda to support oncology information retrieval.
- Designed backend microservices enabling automated document ingestion, semantic search, and contextual response generation.
- Implemented evaluation pipelines analyzing 240+ clinical response outputs to improve factual accuracy, safety, and reliability.

## PROJECTS

### PDF Reader with RAG Question Answering System

- Developed an end-to-end document intelligence pipeline performing chunking, embedding generation, and citation-based semantic retrieval.
- Designed REST APIs and backend services enabling scalable multi-document conversational question answering.
- Implemented retrieval quality evaluation and response validation to improve answer reliability.

### Sentiment Analysis NLP Pipeline

- Built supervised machine learning models to classify textual sentiment with full preprocessing and feature engineering workflows.
- Performed tokenization, normalization, and stop-word filtering using Python NLP libraries.
- Visualized sentiment insights using statistical plots and data exploration tools.

## ACHIEVEMENTS

- Dean's List with Distinction Fall 2024
- Undergraduate Teaching Assistant University of Arizona (Fall 2024)
- Clubs & Organizations:** Phi Sigma Rho Greek Honor Society for Women in STEM, Arizona Ramblers Hiking Club